BABU BANARASI DAS ENGINEERING COLLEGE
(Recognized by AICTE, Govt. of India & Affiliated to
Dr. A.P.J. Abdul Kalam Technical University, Lucknow)
AKTU College Code: 508

Department of Information Technology

Mini Project Presentation

On

Loan Eligibility Prediction Using Machine Learning

Submitted By

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Content

Introduction

Banks are making a major part of profits through loans. Though a lot of people are applying for loans. It's hard to select the genuine applicant, who will repay the loan. While doing the process manually, a lot of misconceptions may happen to select a genuine applicant. Therefore, we are developing a loan prediction system using machine learning, so that the system automatically selects the eligible candidates. This is helpful to both bank staff and applicants. The time period for the sanction of a loan will be drastically reduced.
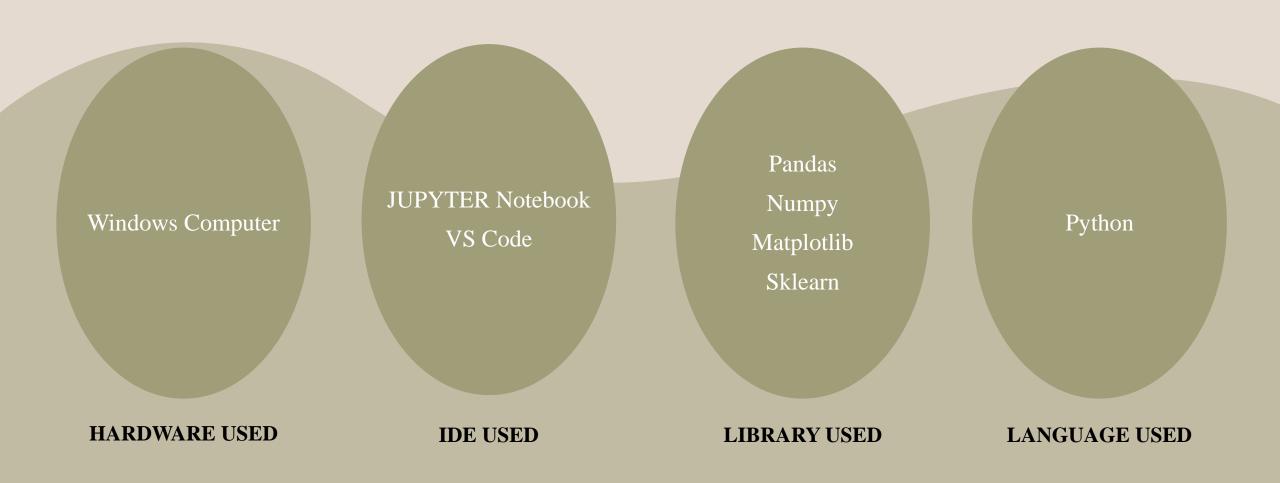
Problem Statement & Solution

Problem Statement

1) Intensive time consumption process of verification and validation.

2) Human errors can be introduced during the validation process.

3) No cross-referencing previous loan records.

4) Lot of human resource required.

Problem Solution
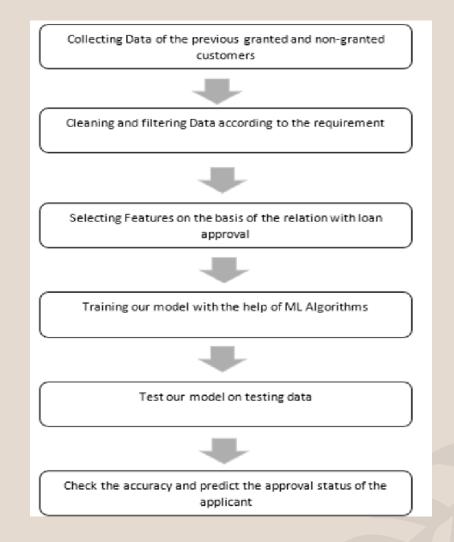
1) This machine learning model calculates all the parameters given and predicts if the applicant is eligible for loan or not in very less time.

2) Time required for verification, and validation reduces significantly.
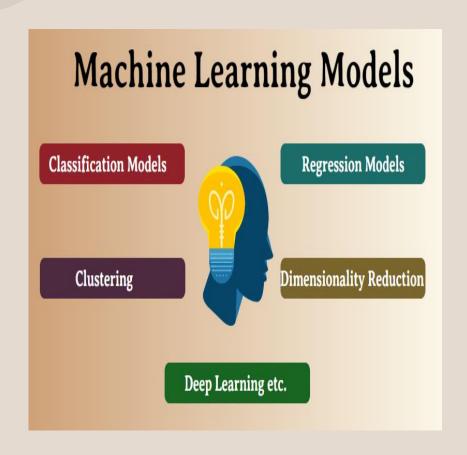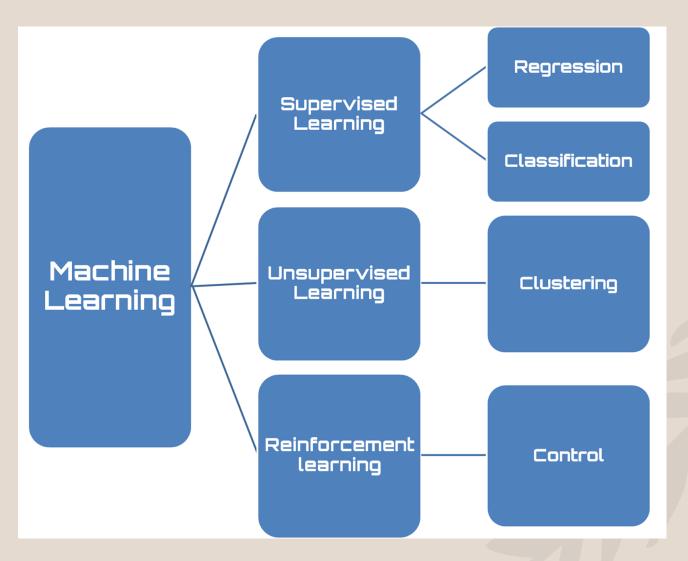
Hardware and Software Used

Windows Computer

JUPYTER Notebook
VS Code

Pandas

Numpy

Matplotlib

Sklearn

Python

HARDWARE USED

IDE USED

LIBRARY USED

LANGUAGE USED

Proposed Work

- **Data Collection-** First, the data is collected which should be of good quality and representative.

- **Analyzing Data-** Analyzing what kind of data we are dealing with.

- **Data Cleaning-** Cleaning the data of any null values, if present.

- **Model Building-** After analyzing and cleaning the data we can build ML models.

- **Evaluating Performance Metrics of Models-** Evaluating which ML model works best and tuning it.

Collecting Data of the previous granted and non-granted customers

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Cleaning and filtering Data according to the requirement

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Selecting Features on the basis of the relation with loan approval

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Training our model with the help of ML Algorithms

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Test our model on testing data

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Check the accuracy and predict the approval status of the applicant
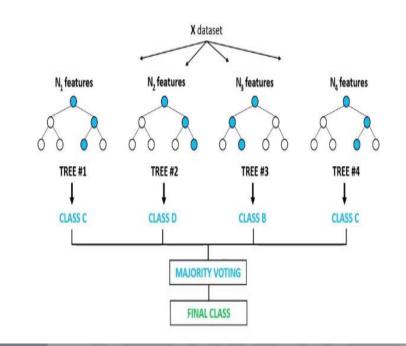
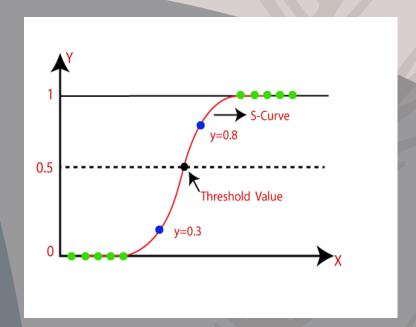# Machine Learning Models

Algorithm

➢ **RANDOM FOREST CLASSIFIER**

o Random Forest is a popular machine learning algorithm that belongs to the supervised learning technique. It can be used for both Classification and Regression problems in ML. It is based on the concept of **ensemble learning,** which is a process of *combining multiple classifiers to solve a complex problem and to improve the performance of the model.*

o *Random Forest is a classifier that contains a number of decision trees on various subsets of the given dataset and takes the average to improve the predictive accuracy of that dataset.*

o **The greater number of trees in the forest leads to higher accuracy and prevents the problem of overfitting.**

➢ LOGISTIC REGRESSION

o Logistic regression is one of the most popular Machine Learning algorithms, which comes under the Supervised Learning technique. It is used for predicting the categorical dependent variable using a given set of independent variables.

o Logistic regression predicts the output of a categorical dependent variable. Therefore, the outcome must be a categorical or discrete value. It can be either Yes or No, 0 or 1, true or False, etc. but instead of giving the exact value as 0 and 1, **it gives the probabilistic values which lie between 0 and 1**.

o Logistic Regression is much similar to the Linear Regression except that how they are used. Linear Regression is used for solving Regression problems, whereas **Logistic regression is used for solving the classification problems**.

o In Logistic regression, instead of fitting a regression line, we fit an "S" shaped logistic function, which predicts two maximum values (0 or 1).

Advantages

- There have been a number of cases of input glitches. Human errors in content while filling it manually whereas in automated prediction systems, it is more secure and reliable.

- The complexity of filling out loans in banks will become much easier as an applicant will know how much amount of loan, he is viable.

- Machine learning increases the accuracy compared to the old traditional system and results are displayed in polar format (yes or no).

Applications

1. In banking sector.

2. Co-operate sectors that provide loans to their employees.

3. An individual/applicant who wants to know about his capability of taking a loan.

Conclusion

The system checks the applicant whether he/she is eligible for the loan or not. Recovery of loans is a major contributing parameter in the financial statements of a bank. It is very difficult to predict the possibility of payment of the loan by the customer. Machine learning (ML) techniques are very useful in predicting outcomes for large amounts of data.

Certificate of Completion

INTERNSHALA TRAININGS

Certificate of Training

Alka Gupta

from BABU BANARASI DAS ENGINEERING COLLEGE has successfully completed a 6-week online training on **Machine Learning**. The training consisted of Introduction to Machine Learning, Data, Introduction to Python, Data Exploration and Pre-processing, Linear Regression, Introduction to Dimensionality Reduction, Logistic Regression, Decision Tree, Ensemble Models, and Clustering (Unsupervised Learning) modules.
Alka scored 92% marks in the final assessment and is a top performer in the training.
We wish Alka all the best for future endeavours.

Sarvesh Agarwal
FOUNDER & CEO, INTERNSHALA

Date of certification: 2023-11-02   Certificate no. : 4e1ysisiac5
For certificate authentication, please visit https://trainings.internshala.com/verify_certificate

THANK YOU